

## **SUBSTITUTE SPECIFICATION**

### **FIELD OF THE INVENTION**

The present invention relates to an umbrella having a runner, which can be positioned to maintain the umbrella in an open state by a novel and improved structure.

### **BACKGROUND OF THE INVENTION**

It is known that an umbrella includes a runner for controlling the umbrella frame to be opened or closed. In order to keep the umbrella at the opened state, a spring bow is mounted within the shaft for stopping the runner at the upper position. The manufacturing procedure for mounting the spring bow in the shaft is very difficult and the strength of the shaft will be decreased if a slot is formed thereon. Moreover, the spring bow may clip the user's finger when the umbrella is closed.

### **SUMMARY OF THE INVENTION**

The present invention provides an engaging structure for the runner of an umbrella, in which the runner can be engaged around the shaft without the spring bow of prior art. Hence, it can be manufactured with ease and will be convenient for people to use. The features and advantages of the present invention will be described hereafter and may be more fully understood in light of the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view showing the engaging structure for a runner according to the present invention.

Figure 2 is an exploded perspective view of Figure 1.

Figure 3 is a plan view showing an umbrella with the runner in a closed state according to the present invention.

Figure 4 is a plan view of Figure 3 showing the umbrella being opened.

Figure 5 is a plan view of Figure 4 showing the umbrella completely opened.

Figure 6A is a plan view showing another embodiment of engaging structure according to the present invention.

Figure 6B is a cross-sectional view showing another embodiment with grooves in the shaft corresponding to the balls received in the apertures of the runner.

Figure 7 is a plan view showing a further embodiment of engaging structure according to the present invention.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Figures 1 to 3 show the present invention which provides an engaging structure for the runner of an umbrella, wherein the runner (1) has been provided with several side apertures (11), each for receiving a corresponding ball (12). A sleeve (2) is provided around the runner (1), which includes an upper opening (22) and an inner middle edge (21) having a smaller diameter than the opening (22). The sleeve (2) has an inner low, projective ring (23), which can engage with a positioning ring (13) on the runner (1) thereunder. The runner (1) with the sleeve (2) is provided around a shaft (3) having an annular concave portion (31).

When opening the umbrella the runner (1) is moved upward to the position shown in Figure 4 until it cannot be moved but the sleeve (2) can still be moved upward a little distance to force the projective ring (23) to slide over the positioning ring (13) allowing the middle edge (21) of the sleeve (2) to compress the balls (12) which have fallen into the concave portion (31) of the shaft (3). This procedure obtains a firm engagement for the runner with the shaft and maintains the umbrella in a stable opened state without the need for a spring bow mounted in the shaft.

In order to obtain a similar engaging function, the shaft (3) of the invention can be modified to provide it with several grooves (33) corresponding to the balls (12) as shown in Figure 6B. Alternatively, two tubes (32) are provided on the shaft (3) separated at a

distance thereby forming an annular concave portion between them for receiving the balls (12) in order to engage the runner (1) to maintain the umbrella in an open state.